

In re Patent Application of:

**MEHUYS ET AL**

Serial No. 10/795,925

Filed: 03/08/2004

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Amendments to the Claims

Claims 1. - 3. (cancelled)

4. (currently amended) A laser system, comprising:

a laser element having a laser signal output, the wavelength profile of which changes with a change in operating conditions;

a gain medium having an absorption, optically coupled to be pumped by the laser element;

and

a wavelength-selective stabilizing reflective filter in line with the laser for receiving the laser signal, said reflective filter having a reflectivity profile having reflectivity peaks at two predetermined spaced wavelengths, wherein substantially most of the absorption of the gain medium is between or about the peaks of the wavelength selective reflective filter wavelength ~~within the operating wavelength of the laser in the absence of said filter~~, the reflective filter being partially reflective at said different predetermined reflective spaced wavelengths and substantially less reflective in a wavelength band there between, and providing optical feedback of a portion of the laser signal to the laser element that wavelength-stabilizes its output, a degree of reflectivity at said predetermined wavelengths and a relative wavelength separation between the predetermined spaced wavelengths being such that throughout the change in operating conditions, output power of the laser element is concentrated at one or more of the reflector center wavelengths, with regions of negligible output power at wavelength sections between the reflector center wavelengths, wherein the laser system is without active cooling.

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Claims 5. - 6. (cancelled)

7. (currently amended) A laser system, comprising:  
a laser element having a laser signal output, the wavelength profile of which changes with a change in operating conditions  
, said laser element for pumping a gain medium having an absorption; and  
a wavelength-selective stabilizing reflective filter in line with the laser for receiving the laser signal, said reflective filter having a reflectivity profile having reflectivity peaks at two predetermined spaced wavelengths ~~within the operating wavelength of the laser in the absence of said filter,~~ wherein substantially most of the absorption of the gain medium is between the peaks of the wavelength selective reflective filter wavelengths, the reflective filter being partially reflective at said different predetermined reflective spaced wavelengths and substantially less reflective in a wavelength band there between, and providing optical feedback of a portion of the laser signal to the laser element that wavelength-stabilizes its output, a degree of reflectivity at said predetermined wavelengths and a relative wavelength separation between the predetermined spaced wavelengths being such that throughout the change in operating conditions, output power of the laser element is concentrated at one or more of the reflector center wavelengths, with regions of negligible output power at wavelength sections between the reflector center wavelengths, wherein the wavelength selective reflective filter includes wavelength selective dielectric coatings.

Claims 8. - 9. (cancelled)

10. (currently amended) A laser system, comprising:

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a laser element having a laser signal output, the wavelength profile of which changes with a change in operating conditions, said laser element for pumping a gain medium having an absorption in an absorption band; and  
a wavelength-selective stabilizing reflective filter in line with the laser for receiving the laser signal, said reflective filter having a reflectivity profile having reflectivity peaks at two predetermined spaced wavelengths, wherein substantially most of the absorption of the gain medium is between the peaks of the wavelength selective reflective filter wavelength, ~~within the operating wavelength of the laser in the absence of said filter,~~ the reflective filter being partially reflective at said different predetermined reflective spaced wavelengths and substantially less reflective in a wavelength band there between, and providing optical feedback of a portion of the laser signal to the laser element that wavelength-stabilizes its output, a degree of reflectivity at said predetermined wavelengths and a relative wavelength separation between the predetermined spaced wavelengths being such that throughout the change in operating conditions, output power of the laser element is concentrated at one or more of the reflector center wavelengths, with regions of negligible output power at wavelength sections between the reflector center wavelengths, wherein the reflective filter comprises two filters having different reflectivity responses, one of the filters having a reflectivity peak at one of the two predetermined spaced wavelengths and the other of the filters having a reflectivity peak at the other of the two predetermined spaced wavelength and wherein the degree of reflectivity of each of the reflective filters is approximately equal.

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Claims 11. - 21. (cancelled)

22. (currently amended) A laser system, comprising:

a laser element having a laser signal output, the wavelength profile of which changes with a change in operating conditions;

a gain medium having an absorption; and

a wavelength-selective stabilizing reflective filter in line with the laser for receiving the laser signal, said reflective filter having a reflectivity profile having reflectivity peaks at two predetermined spaced wavelengths ~~within the operating wavelength of the laser in the absence of said filter,~~ wherein substantially most of the absorption of the gain medium is between or about the peaks of the wavelength selective reflective filter wavelength, the reflective filter being partially reflective at said different predetermined reflective spaced wavelengths and substantially less reflective in a wavelength band there between, and providing optical feedback of a portion of the laser signal to the laser element that wavelength-stabilizes its output, a degree of reflectivity at said predetermined wavelengths and a relative wavelength separation between the predetermined spaced wavelengths being such that throughout the change in operating conditions, output power of the laser element is concentrated at one or more of the reflector center wavelengths, with regions of negligible output power at wavelength sections between the reflector center wavelengths; and comprising a gain medium optically coupled with the laser element for receiving pump energy therefrom and further comprising an optical isolator in an optical path with the gain medium.

Claims 23. - 27. (cancelled)

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28. (New) A laser system, as defined in claim 4, wherein a wavelength of the absorption peak of the gain medium is between the two predetermined spaced wavelengths.